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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,357	03/18/2002	David Coates	MERCK 2391	9084

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,357

Applicant(s)

COATES ET AL.

Examiner

Tarifur R Chowdhury

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 03/18/02 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1-7 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al., (Koch), USPAT 5,619,352 in view of Chung et al., (Chung), USPAT 5,995,184.**

4. Koch discloses and shows in Fig. 11, a liquid crystal display device comprising:

- a liquid crystal cell formed by two transparent substrates (340, 345) having surfaces which oppose each other, electrode layer (325, 330) provided on the inside of the substrates and superposed with alignment layers (not shown), and a liquid crystal medium (1110) which is present between the two transparent substrates;

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- a pair of polarizers (1105, 1115) arranged outside the transparent substrates;
- and
- at least one optical compensator (1100) between the polarizer (1105) and the substrates (340).

Koch further discloses (col. 12, lines 41- col. 13, line 4) that the optical compensator (1100) comprising, stacked layers of:

- o at least one O plate retarder;
- o at least one A plate retarder; and
- o at least one negative C plate retarder.

The only difference between the claimed invention and Koch is that Koch does not explicitly disclose that the A plate retarder is a low tilt A plate retarder having an average low tilt angle of 1 to 10 degrees and comprise a linear or cross-linked polymerized liquid crystalline material.

Chung discloses a low tilt A plate retarder having a tilt angle at the air interface of from 0 to 25 degrees and that the A plate retarder comprising polymerizable liquid crystalline material (col. 4, lines 26-29). Chung also discloses that such retarders are advantageous since it improves viewing angle and contrast of a display (col. 2, lines 46-49). Accordingly, when one calculate the average tilt angle of the plate considering the tilt angle to be 25 degrees (highest) near the air interface, it would always be much less than 25 degree since the tilt angle is nearly 0 degrees near the substrate. Similarly, when one calculates the average tilt angle considering the tilt angle at the air interface

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being about 10 degrees, the average tilt angle would be within the claimed range of 1 to 10 degrees.

Chung is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use a low tilt A plate retarder comprising polymerizable liquid crystalline material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the A plate retarder of Koch with a low tilt A plate retarder having an average low-tilt angle overlapping the claimed range (In re Malagari, 499 F2D 197, 182 USPQ549 (CCPA 1974)) and comprising polymerizable liquid crystalline material and having a thickness of 1.0 μm (overlaps the range of claim 7) so that a display with improved viewing angle and contrast is obtained, as per the teachings of Chung.

Accordingly, claims 1, 5, 7, 11 and 16 would have been obvious.

As to claim 2, Koch discloses (claim 8) that the compensator comprises one or more C plates.

As to claim 3, Koch also discloses that the location of O plate retarder is purely a design choice and is generally, based on the optical requirements of the display (col. 12, lines 55-57) and thus it would have been obvious to have the C plate between the O plate and the A plate.

As to claim 4, Koch discloses that the average tilt angle of the O plate retarder is 20 – 80 degrees (overlaps the claimed range) (col. 12, lines 49-50).

As to claim 6, Koch further shows in Fig. 12 that the tilt angle in the O plate retarder varies monotonously in a direction perpendicular to the plane of the film from a minimum value at one surface of the film to a maximum value at the opposite surface of the film.

As to claim 10, Koch also discloses (col. 12, lines 42-46) that the O plate retarder comprises a linear or cross-linked polymerizable liquid crystalline material with tilted or splayed structure.

As to claim 12, Koch also discloses (col. 7, lines 33-41) that the C plate is a negatively birefringent polymer film.

As to claim 13, it is common and known in the art to fabricate a C plate by the use of either uniaxially compressed polymers or casting acetate cellulose and thus would have been obvious to avail a proven technique to form a C plate.

As to claims 14 and 15, using a C plate that comprises a linear or cross-linked polymerized chiral liquid crystalline material with a helically twisted structure wherein the helical pitch of the material is less than 250 nm is common and known in the art and thus would have been obvious to avail a proven C plate.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch in view of Chung as applied to claims 1-7 and 10-16 above and further in view of Skarohlid, USPAT 6,266,114.

6. Koch and Chung fail to explicitly disclose the optical retardation of the O plate and the A plate. However, as evidenced by Skarohlid (col. 2, lines 59-61) a O plate retarder having optical retardation of +70 to +140 nm and an A plate retarder having

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optical retardation of +30 to +180 nm (col. 3, lines 24-25) are known and commercially available and thus would have been obvious to avail a proven O plate retarder and an A plate retarder having optical retardation in the range of +70 - +140 nm (overlaps the claimed range) and +30 to +180 nm (overlaps the claimed range) respectively.

Response to Arguments

7. Applicant's arguments filed on 04/20/04 have been fully considered but they are not persuasive.

In response to applicant's argument Koch does not disclose that the A-plate compensator has a low-tilt, particularly an average tilt angle of from 1 to 10 degrees, it is respectfully pointed out to applicant that the examiner recognizes the missing feature and uses Chung to find a teaching, suggestion or motivation to include an A-plate compensator having a low-tilt angle (within the claimed range).

In response to applicant's argument that Chung does not disclose that the average tilt-angle of the A-plate is from 1 to 10 degrees, applicant's attention is respectfully requested to the rejection (explanation) above.

Accordingly, the combination of Koch and Chung was proper and would result in or suggest the claimed invention. Similarly as of claims 8 and 9 the combination of Koch, Chung and Skarohlid was proper and would result in or suggest the claimed invention.

Therefore, the rejection was maintained.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

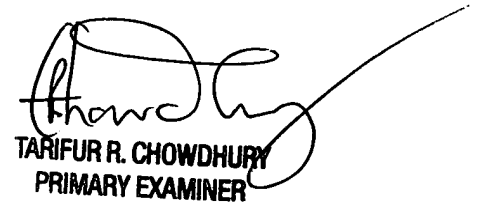
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC
June 29, 2004



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER